

Tuesday, July 05, 2016 1:41:55 PM

Page 1

Setup Start *NS1*

Stop *NS2*

Customer:

Run Start *NR1*

Stop ***NR2***

Date:

1608-24

DAS
27
9-89

SEP 08 2016

Packaging

AUG 23 2016

0.00

Quality Control

DAS
27
9-89

SEP 08 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td style="border: none;"></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																
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		OTHER : _____																																																																		

Work Order ID 148539

Tuesday, July 05, 2016 1:41:55 PM

148539

Page 2

Item ID: D412-786-015 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Tailboom Mount
Start Date: 7/6/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 7/8/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Packaging	0.00							
130									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D412-786-015								
	Location: _____								
	PPP Rev: _____								
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.00							
Quality Control									

DAS 27 9-89
SEP 08 2016
DAS 21 9-89
SEP 08 2016
DAS 21 9-89
SEP 08 2016

PP148533

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Picklist Print

Tuesday, July 05, 2016 1:41:55 PM

Page 1

Work Order ID: 148539

148539

Parent Item: D412-786-015

D412-786-015

Parent Item Name: Tailboom Mount

Start Date: 7/6/2016

Required Date: 7/8/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A NEW ISSUE 12-04-27 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D3866-041		Manufactured	No				Each	1.0000		1			
D3866-041									**				
Mount													

DAS
27
9-89

Location

Loc Qty

Loc Code

ST055

1

106567

1

D3866-043		Manufactured	No				Each	0.0000					
D3866-043									**				
Tailboom Mount													

DAS
27
9-89

MS21042L3		Purchased	No				Each	2,753.000					
MS21042L3									**				
Nut													

DAS
27
9-89

Location

Loc Qty

Loc Code

CCK007

600

m135056

600

FP001

26

m133790

26

GA

130

m133790

3

m134360

127

OVER007

1200

m135135

1200

ST303

797

m134039

12

m134634

2

m134754

3

m134943

780

②
X B148540 PC
⑫
X M135 135 PC

DAS
6
9-89

DAS
6
9-89

DAS
6
9-89

AUG 24 2016

AUG 13 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
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OTHER : ☐					

Picklist Print

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Page 2

Work Order ID: 148539

148539

Parent Item: D412-786-015

D412-786-015

Parent Item Name: Tailboom Mount

Start Date: 7/6/2016

Required Date: 7/8/2016

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-11

Purchased

No

Each

155.0000

12

MS27039-1-11

Screw

Location

Loc Qty

Loc Code

GA

20

125654

13

9662

7

over006

50

m134738

50

ST280

85

124326

85

Each

1,960.000

NAS1149D0332J

Purchased

No

NAS1149D0332J

Washer

Location

Loc Qty

Loc Code

CA

6

m129682

6

GA

987

m135046

987

ST260a

564

m134848

564

ST264

403

m134502

12

m134738

391

DAS
6
9-89

DAS
6
9-89

AUG 24 2016

~~AUG 13 2016~~

Tuesday, July 05, 2016 1:41:55 PM

Shop Packet Print

Page 2

DQA: _____ Date: _____

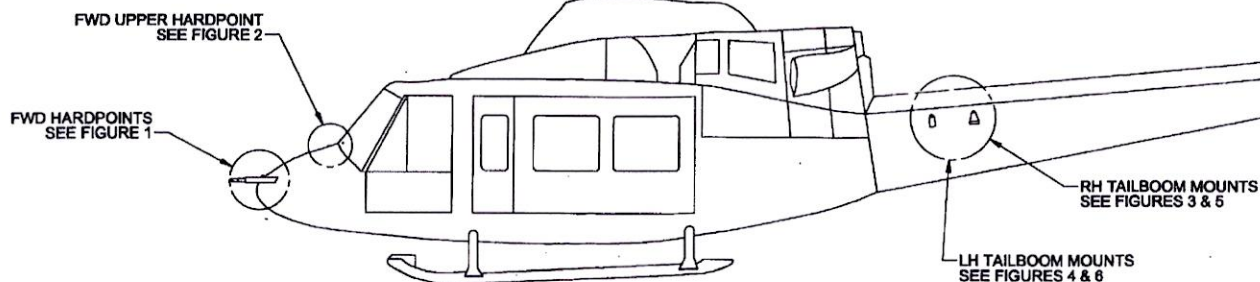


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QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
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D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3868-041	TAILBOOM MOUNT
		2			D3868-043	TAILBOOM MOUNT
	1				D3870-041	FWD LH HARDPOINT
	1				D3870-042	FWD RH HARDPOINT
	1				D3870-5	FWD UPPER HARDPOINT
	1				D3871-1	DOUBLER
	1				D3871-2	DOUBLER
				1	D4950-041	TAILBOOM MOUNT
				2	D4950-043	TAILBOOM MOUNT
	10	12		12	MS21042L3	NUT
	8	12		12	MS27039-1-11	SCREW
	1				MS27039-1-12	SCREW
	1				MS27039-1-14	SCREW
	10	24		24	NAS1149D0332J	WASHER

INSTALLATION	WEIGHT	LONGITUDINAL		LATERAL	
		ARM	MOMENT	ARM	MOMENT
D412-786-011 HARDPOINT KIT	0.58 LBS 0.26 KG	164.67 IN 4.18 M	95.51 IN-LB 1.09 KG-M	-1.25 IN -0.03 M	-0.73 IN-LB -0.008 KG-M
D412-786-013 FWD HARDPOINT KIT	0.22 LBS 0.10 KG	-13.55 IN -0.34 M	-2.98 IN-LB -0.03 KG-M	2.38 IN 0.06 M	0.52 IN-LB 0.006 KG-M
D412-786-015 TAILBOOM MOUNT KIT	0.36 LBS 0.16 KG	273.58 IN 6.95 M	98.49 IN-LB 1.11 KG-M	-3.47 IN -0.09 M	-1.25 IN-LB -0.01 KG-M
D412-786-021 HARDPOINT KIT	0.64 LBS 0.29 KG	164.67 IN 4.18 M	105.39 IN-LB 1.21 KG-M	-1.25 IN -0.03 M	-0.08 IN-LB -0.01 KG-M
D412-786-025 TAILBOOM MOUNT KIT	0.42 LBS 0.19 KG	273.58 IN 6.95 M	114.90 IN-LB 1.32 KG-M	-3.47 IN -0.09 M	-1.46 IN-LB -0.02 KG-M

C	MODIFY D3870-5 INSTALLATION INSTRUCTION, ADD TO NOTE 2, SH 3 AND CLARIFY/CORRECT VIEW C-C (ZN A8-3, C3-3)	DB	14.04.28
B	ADD -021/-025 KITS, SHEETS 6 & 7	DB	13.10.17
A	NEW ISSUE	DB	09.01.14
REV	DESCRIPTION	BY	DATE
DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB	DRAWING NO.	REV. C
CHECKED	Imp Lee	D412-786-1	SHEET 1 OF 7
MFG. APPR.	N/A	TITLE	SCALE
APPROVED	N/A	HARDPOINT KIT INSTALL	NTS
DE APPR.	N/A	COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	14.04.28		

NOTES:

- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-695-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
- 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
- 3) TOUCH UP DRILLED HOLES WITH ALODINE PER THE AIRCRAFT MAINTENANCE MANUAL
- 4) TORQUE FASTENERS AS FOLLOWS: 10-32; 20-25 IN-LBS
- 5) PRIME AND PAINT HARDPOINTS TO MATCH AIRCRAFT PAINT SCHEME PER AIRCRAFT MAINTENANCE MANUAL

w/o 148539

Rem 16/01/05

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval																																																									
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER :			
Misidentified ☐	Past Due ☐																																																																

Work Order ID 148539

148539

Page 1

Tuesday, July 05, 2016 1:41:55 PM

Item ID: D412-786-015

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Tailboom Mount

Start Date: 7/6/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 7/8/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: *sem*Date: *7/07/05*

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr								
D412-786-1	<i>B</i>	<i>07.05</i>	<i>AUG 23 2016</i>	<i>Label</i>	<i>DAS</i>	<i>6</i>	<i>9-89</i>	<i>DAS</i>	<i>21</i>
100	Document Control	0.00						<i>9-89</i>	<i>AUG 24 2016</i>

100

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile and create labels per PPP D412-786-015 chg001

110

Pick Kit

0.00

110

Packaging

Memo

0.00

Packaging

120

QC4- 100% Inspect kits for completeness

0.00

120

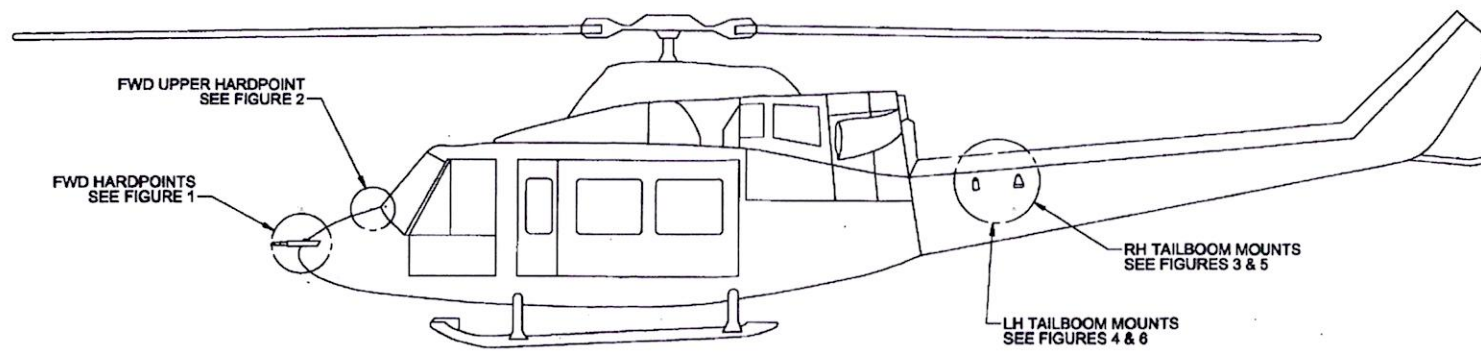
QC

Memo

0.00

Quality Control

REFERENCE ONLY



D412-786-011/-021 HARDPOINT KIT

QTY -011	QTY -013	QTY -015	QTY -021	QTY -025	PART NUMBER	DESCRIPTION
X					D412-786-011	HARDPOINT KIT
1	X		1		D412-786-013	FWD HARDPOINT KIT
1		X			D412-786-015	TAILBOOM MOUNT KIT
			X		D412-786-021	HARDPOINT KIT
			1	X	D412-786-025	TAILBOOM MOUNT KIT
		1			D3866-041	TAILBOOM MOUNT
		2			D3866-043	TAILBOOM MOUNT
	1				D3870-041	FWD LH HARDPOINT
	1				D3870-042	FWD RH HARDPOINT
	1				D3870-5	FWD UPPER HARDPOINT
	1				D3871-1	DOUBLER
	1				D3871-2	DOUBLER
				1	D4950-041	TAILBOOM MOUNT
				2	D4950-043	TAILBOOM MOUNT
	10	12		12	MS21042L3	NUT
	8	12		12	MS27039-1-11	SCREW
	1				MS27039-1-12	SCREW
	1				MS27039-1-14	SCREW
	10	24		24	NAS1149D0332J	WASHER

INSTALLATION	WEIGHT	LONGITUDINAL		LATERAL	
		ARM	MOMENT	ARM	MOMENT
D412-786-011 HARDPOINT KIT	0.58 LBS 0.26 KG	164.67 IN 4.18 M	95.51 IN-LB 1.09 KG-M	-1.25 IN -0.03 M	-0.73 IN-LB -0.008 KG-M
D412-786-013 FWD HARDPOINT KIT	0.22 LBS 0.10 KG	-13.55 IN -0.34 M	-2.98 IN-LB -0.03 KG-M	2.36 IN 0.06 M	0.52 IN-LB 0.008 KG-M
D412-786-015 TAILBOOM MOUNT KIT	0.36 LBS 0.16 KG	273.58 IN 6.95 M	98.49 IN-LB 1.11 KG-M	-3.47 IN -0.09 M	-1.25 IN-LB -0.01 KG-M
D412-786-021 HARDPOINT KIT	0.64 LBS 0.29 KG	164.67 IN 4.18 M	105.39 IN-LB 1.21 KG-M	-1.25 IN -0.03 M	-0.08 IN-LB -0.01 KG-M
D412-786-025 TAILBOOM MOUNT KIT	0.42 LBS 0.19 KG	273.58 IN 6.95 M	114.90 IN-LB 1.32 KG-M	-3.47 IN -0.09 M	-1.46 IN-LB -0.02 KG-M

- NOTES:**
- 1) D412-786-011/-021 HARDPOINT KIT REQUIRED ON 412/412EP AIRCRAFT UTILIZING D412-895-011 BLADE FOLDING KIT WHERE WIRE STRIKE COMPATABILITY IS REQUIRED
 - 2) D412-786-021 HARDPOINT KIT REQUIRED ON AIRCRAFT EQUIPPED WITH BLR TAILBOOM STRAKE KIT
 - 3) TOUCH UP DRILLED HOLES WITH ALODINE PER THE AIRCRAFT MAINTENANCE MANUAL
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C	MODIFY D3870-5 INSTALLATION INSTRUCTION, ADD TO NOTE 2, SH 3 AND CLARIFY/CORRECT VIEW C-C (ZN A8-3, C3-3)	DB	14.04.28
B	ADD -021/-025 KITS, SHEETS 6 & 7	DB	13.10.17
A	NEW ISSUE	DB	09.01.14
REV	DESCRIPTION	BY	DATE
DESIGN	DB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB	DRAWING NO.	REV. C
CHECKED	<i>[Signature]</i>	D412-786-1	SHEET 1 OF 7
MFG. APPR.	N/A	TITLE	SCALE
APPROVED	<i>[Signature]</i>	HARDPOINT KIT INSTALL	NTS
DE APPR.	<i>[Signature]</i>	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	14.04.28		